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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,535	03/31/2004	Daewoong Suh	042390.P18729	9982
59796 7590 03/13/2008 INTEL CORPORATION c/o INTELLEVATE, LLC P.O. BOX 52050 MINNEAPOLIS, MN 55402				
EXAMINER LAM, CATHY FONG FONG				
ART UNIT		PAPER NUMBER		
1794				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/816,535

Applicant(s)

SUH, DAEWOONG

Examiner

Cathy Lam

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 9, 10, 28-31 and 35-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9, 10, 28-31 and 35-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

In view of the amendment and remarks filed on December 13, 2007, the claim objection and 112 rejection have been withdrawn. The 102 rejection has been withdrawn in view of applicant's remarks. The pending claims however continue to be unpatentable as following:

Claim Rejections - 35 USC § 112

1. Claims 1, 28, 29, 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is vague and indefinite as to whether "a nickel layer deposited over the base portion" is on the raised and recessed portions surface of the base portion or is the nickel on the opposite surface (from the raised and recessed portions) or it the nickel layer on the entire base portion? Clarification is required.

Claim Rejections - 35 USC § 102/103

2. Claims 1-6, 9-10, 28-31 and 35-39 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kuruma et al (US 5,100,739).

The present invention is directed to a tool that comprised of a base portion having a raised-recessed pattern on the surface and a nickel layer. The nickel layer is coated over the base portion raised-recessed surface. The tool having the pattern is impressed upon a package substrate.

The base portion is a nickel alloy material comprised of either Ni-Co, Ni-Mn or Ni-Fe; the nickel layer that coated over the base portion is a nickel composite layer or a

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nickel alloy layer that can be nickel with a reinforcement, Ni-P or Ni-B. The reinforcement constituent can be SiC, Al₂O₃, diamond particles or polytetrafluoroethylene.

Kuruma teaches a plated metal sheet comprised of a metal sheet (2), a nickel alloy plating layer (3), a composite metal plating layer (4); all in the named order (Fig. 2).

The plated metal sheet is used for manufacturing a printed circuit board by hot pressing (col 4 L 51-52). The examiner is taking the position that the printed circuit board resembles the claimed package substrate.

The metal sheet (2) is comprised of a steel material such as austenitic stainless steel or ferrite stainless steel (col 5 L 56-57).

The nickel alloy-plating layer (3) can be a nickel phosphorus alloy or a nickel boron alloy (col 6 L 1-2).

The composite metal plating layer (4) is comprised of metals such as *nickel*, chromium, *cobalt*, zinc, copper, tin, etc. or their alloy (col 7 L 12-15). The composite metal plating layer (4) may also be a nickel phosphorus or a nickel boron alloy (col 7 L 17-21). A reinforcement material such as fluorocarbon polymer particles (5) are uniformly dispersed within the composite metal plating layer (4) (col 8 L 62-67).

Both the nickel alloy plating layer (3) and the composite metal plating layer (4) impart a high hardness as an upper layer (col 7 L 19-21). The average thickness of the nickel alloy plating layer (3) is under 0.1 μm and the average thickness of the composite metal plating layer (4) is under 0.1 μm (col 6 L 55-57 & col 7 L 47-49). The

examiner is taking the position that both layer (3) and layer (4) resemble the claimed nickel layer and/or the nickel composite layer .

Kuruma teaches the main scope of the present invention but is silent about having a raised-recessed pattern on the metal sheet (2) (or base portion).

In view of Kumura's teaching, one skill in the art would chose Kuruma's composite material and make a surface pattern with it because Kuruma's composite is used for pressing and does not adhere to the surface of the substrate to which the composite is pressed against.

Response to Arguments

3. Applicant's arguments filed on December 13, 2007 have been fully considered but they are not persuasive. In the remarks, applicant traverses the art rejections and raised the following issues:

- A. Kuruma's plated metal sheet is used as a separator between sets of laminated sheets that are to become a printed circuit board.
- B. Kuruma's plated sheet is not the sort of pressing that embosses or patterns a surface but rather the sort that forces together two or more objects in order to join the objects together.
- C. The fluorocarbon polymer particles exposed on the surface of a composite metal plating layer, these fluorocarbon particles do not constitute a pattern on a base portion of a tool. The intended purpose for the fluorocarbon polymer particles on the surface is to impart strippability to the plated sheet. Thus it is better when they do not protrude

randomly from the surface of the plating layer but rather to form a smooth surface above the surface of the plating layer.

In respond to the above issues:

A. & C. Applicant's nickel layer also comprises PTFE, thus it inherently gives ease of separation after stamping (or embossing). The examiner is taking the position that Kuruma's composite metal plating layer having a smooth surface which is good separating sheet does not necessary refers to a composite metal plating layer that has no raised-recessed pattern. The fact that having a good separability of the stamp is essential after stamping or embossing. Applicant mixed the concept of a roughed surface with a surface having raised-recessed pattern, and Applicant argues that since the prior art teaches a smooth surface therefore a raised-recessed surface pattern does not exist. The examiner does not agree.

B. Kuruma teaches the materials used for the claimed base portion and the nickel layer, but just does not specially teach a raised-recessed surface for stamping or embossing. The examiner is taking the position that such would be obvious and a skill artisan would modify Kuruma's product to have a desired shaped surface because Kuruma's product is used for pressing.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy Lam/
Primary Examiner, Art Unit 1794
March 03, 2008

